I CLAIM:

1. A vacuum arc coating apparatus comprising

at least one rectangular cathode plate having opposed long sides connected to a negative pole of an arc current source, the at least one cathode plate having an evaporation surface,

a coating chamber defined by the evaporation surface and a housing,

a substrate holder within the coating chamber,

a plurality of anodes within the coating chamber spaced from the evaporation surface, connected to a positive pole of a current source,

an arc igniter for igniting an arc between the at least one cathode and each anode and generating arc spots on the evaporation surface, and

a magnetic steering system comprising at least first and second steering conductors arranged along opposite sides of the at least one cathode plate, the first steering conductor carrying a current in a direction opposite to a direction of current in the second steering conductor, the first and second steering conductors each being disposed in the vicinity of the evaporation surface so that a magnetic field generated thereby exerts a magnetic influence on the arc spot, the first steering conductor being electrically independent of the second steering conductor,

wherein by varying a level of current applied through the first steering conductor relative to the second steering conductor the arc spot shifts toward a long side of the at least one cathode plate.

2. The apparatus of claim 1 in which the first and second steering conductors are substantially linear.

3. The apparatus of claim 1 in which the first and second steering conductors are oriented substantially parallel to the long sides of the cathode plate.

4. The apparatus of claim 3 in which steering conductors are also provided along short sides of the cathode plate.

5. The apparatus of claim 4 comprising a plurality of cathode plates, in which separate steering conductors are provided along short sides of each cathode plate.

6. The apparatus of claim 5 in which the first and second steering conductors extend along the long sides of all of the plurality of cathode plates.

7. The apparatus of claim 1 in which focusing conductors are provided along the long sides of the cathode plate.

8. The apparatus of claim 7 in which magnetic fields generated by the focusing conductors confine a flow of plasma from the cathode plate to the substrate holder.

9. The apparatus of claim 4 in which adjacent to one cathode plate are provided a plurality of pairs of steering conductors parallel to the short sides of the one cathode plate and having opposite polarities, to shift arc spots toward a long side of the one cathode plate both at the ends of the one cathode plate and at an intermediate portion of the one cathode plate.

10. The apparatus of claim 1 in which each of the plurality of anodes has an associated shield covering an area of the at least one cathode in which arc spots are likely to stagnate.

11. A vacuum arc coating apparatus comprising

at least one rectangular cathode plate having opposed long sides and opposed short sides and connected to a negative pole of an arc current source, the at least one cathode plate having an evaporation surface,

a coating chamber defined by the evaporation surface and a housing, containing a substrate holder,

at least one anode within the coating chamber spaced from the evaporation surface, connected to a positive pole of a current source,

an arc igniter for igniting an arc between the cathode and the anode and generating an arc spot on the target evaporation surface, and

a magnetic steering system comprising at least first and second steering conductors respectively arranged behind the evaporation surface along

the short sides of the at least one cathode plate, the first steering conductor carrying a current in a direction opposite to a direction of current in the second steering conductor, the first and second steering conductors being electrically independent and being disposed in the vicinity of the evaporation surface so that a magnetic field generated thereby exerts a magnetic influence on the arc spot,

wherein the magnetic fields generated by the steering conductors are oriented in the same direction in front of the evaporation surface such that a level of current through the first and second steering conductors can be varied independently to thereby direct arc spots in a desired direction around the evaporation surface.

12. The apparatus of claim 11 in which the first and second steering conductors are substantially linear.

13. The apparatus of claim 11 in which the first and second steering conductors are oriented substantially parallel to the long sides of the cathode plate.

14. The apparatus of claim 13 in which steering conductors are also provided along short sides of the cathode plate.

15. The apparatus of claim 14 comprising a plurality of cathode plates, in which separate steering conductors are provided along short sides of each cathode plate.

16. The apparatus of claim 15 in which the first and second steering conductors extend along the long sides of all of the plurality of cathode plates.

17. The apparatus of claim 11 in which focusing conductors are provided along the long sides of the cathode plate.

18. The apparatus of claim 17 in which magnetic fields generated by the focusing conductors confine a flow of plasma from the cathode plate to the substrate holder.

19. The apparatus of claim 14 in which adjacent to one cathode plate are provided a plurality of pairs of steering conductors parallel to the short sides of the one cathode plate and having opposite polarities, to shift arc spots toward a long side of the one cathode plate both at the ends of the one cathode plate and at an intermediate portion of the one cathode plate.

20. The apparatus of claim 11 in which each of the plurality of anodes has an associated shield covering an area of the at least one cathode in which arc spots are likely to stagnate.